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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/510,665   | 05/16/2005  | Georgios Konstas     | 04-508              | 4968             |
| 34704  | 7590        | 03/14/2006           | EXAMINER            |                  |
| BACHMAN & LAPOINTE, P.C.<br>900 CHAPEL STREET<br>SUITE 1201<br>NEW HAVEN, CT 06510 |             |                      | PILKINGTON, JAMES   |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 3682                |                  |

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/510,665

Applicant(s)

KONSTAS ET AL.

Examiner

James Pilkington

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3682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the stators must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

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application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. The disclosure is objected to because of the following informalities:

- [0001] "and" on line 5 should be —an—
- [0002] "...that is to say can be..." should be --that is to say it can be--
- [0023] "...the axis 4..." should be —the axis A4—

Appropriate correction is required.

### ***Claim Objections***

4. The claims are objected to because they include reference characters which are not enclosed within parentheses.

Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP § 608.01(m).

5. Claim 30 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper

dependent form, or rewrite the claim(s) in independent form. The examiner is viewing the terms "releasable" and "re-detachable" to mean the same.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1,3, 4, 7, 9, 11, 23 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 3, the word "optionally" renders the claim indefinite because it is unclear whether the limitation following the phrase is a part of the claimed invention.

Regarding claim 4, the phrase "in particular a resolver, encoder or absolute value transmitter" renders the claim indefinite because it is unclear whether one or all of the items are part of the claimed invention. Additionally, "...is assigned a transmitter element, in particular..." is a range within a range. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c).

Re clm 7, the term "close by" is a relative term which renders the claim indefinite. The term "close by" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Re clm 9, it recites the limitation "recirculating-ball spindle" in line 4. There is insufficient antecedent basis for this limitation in the claim. The examiner believes the claim should read "...a threaded, recirculating-ball spindle..."

Re clms 11 and 26, the phrase "spindle-like" renders the claim(s) indefinite because the specification does not provide a standard for ascertaining how much like a spindle the recesses are.

Claim 23 recites the limitation "the particular spindle" in line 2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-4, 6, 7, 12-19, 21, 22 and 27-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Azuma et al, USP 5,046,915.

Re clm 1, Azuma discloses a drive device for a robot arm (18) for a robot (10) which is connected to a main drive (50) via at least one arm (16) such that it can be moved, wherein the robot arm (18) has a plurality of driver motors (28, 32a, 32b) for swiveling a housing (20) and for driving a spindle (22). (It is to be noted that parts 18 and 20 are both robot arms and housings, just as the instant applicant refers to housing 5 as an arm 4).

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Re clm 2 and 12, the drive motors (28, 32a, 32b) are inserted into the housing/robot arm (18) in an integrated manner.

Re clm 3, the drive motors (28, 32a, 32b) are integrated in receiving openings of the housing (18) in a releasable connection (the motors can be removed).

Re clm 4, each drive motor (28, 32a, 32b) is assigned a transmitter element (C 5/L 29-32)

Re clm 6, the housing/robot arm (20) is connected to the housing/arm (18) such that it can be swiveled about an axis, the drive motor (28) controlling a swiveling movement of the housing/robot arm (20) with respect to housing/arm (18).

Re clm 7, the two drive motors (32a, 32b) are arranged close by in the region of the drive motor (28).

Re clm 13, the main drive (50) has a drive motor (50), which drives the arm (16) about an axis.

Re clm 14, the motor shafts of the drive motors (28,32a,32b) are mounted in the housing (18).

Re clm 15, stators of the drive motors (28,32a,32b) are inserted into the receiving openings in a fixed manner.

Re clm 16, Azuma discloses a robot (10) comprising a main drive (50) connected to an arm (16) for driving the arm about an axis; a robot arm (18/20) connected to the arm (16), the robot arm (18/20) comprises a housing and a spindle (22) mounted in the housing; and drive means for driving the housing at least about an axis of the arm

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(18/20) and the spindle (22) about an axis of the robot arm (18/20), the drive means comprises a plurality of driver motors (28, 32a, 32b).

Re clm 17 and 27, the drive motors (28, 32a, 32b) are inserted into the housing/robot arm (18) in an integrated manner.

Re clm 18, the drive motors (28, 32a, 32b) are integrated in receiving openings of the housing (18) in a releasable connection.

Re clm 19, each drive motor (28, 32a, 32b) is assigned a transmitter element (C 5/ L 29-32)

Re clm 21, the housing/robot arm (20) is connected to the housing/arm (18) such that it can be swiveled about an axis by the drive motor (28).

Re clm 22, the two drive motors (32a, 32b) are arranged in the region of the drive motor (28).

Re clm 28, the main drive (50) has a drive motor (50), which drives the arm (16) about an axis.

Re clm 29, the motor shafts of the drive motors (28,32a,32b) are mounted in the housing (18).

Re clm 30, stators of the drive motors (28,32a,32b) are inserted into the receiving openings in a re-detachable manner.

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the



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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 5 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Azuma et al, USP 5,046,915, in view of Hendricks, USP 5,497,860.

Azuma discloses all of the claimed subject matter as described above.

Azuma does not disclose an electromagnetically operated braking device assigned to the drive motor.

Hendricks teaches an improved electromagnetic braking device (10) for use on an electric motor for the purpose of providing a very low AC hum (C 2).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Azuma, as taught by Hendricks, and provide an electromagnetic braking device which provides a very low AC hum (C 2).

12. Claims 8-11 and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Azuma et al, USP 5,046,915, in view of Sawada et al, USP 5,271,292.

Re clms 8 and 23, Azuma et al discloses all of the claimed subject matter as described above. Azuma also discloses the spindle (22) is driven by a drive motor (32a) by a transmission element (C 5/L 19-26).

Azuma does not disclose the spindle having a drive disk.

Sawada teaches a drive disk (78) for the purpose of transferring the drive force from the motor to the spindle (C 6/ L 40-45).

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It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Azuma, as taught by Sawada, and provide a drive disk for the purpose of transferring the drive force from the motor to the spindle.

Re clms 9 and 24, Azuma discloses all of the claimed subject matter as described above.

Azuma does not disclose that the spindle is constructed as a threaded, recirculating-ball spindle having a groove running in a longitudinal direction.

Sawada teaches the spindle (22) being constructed as a threaded, recirculating-ball spindle (C 5/L 40-46) having a groove running in a longitudinal direction (22a) for the purpose of allowing the spindle to move in the vertical direction when driven by the motor (C 5/ L 37-47).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Azuma, as taught by Sawada, and provide a threaded, recirculating-ball spindle having a groove running in a longitudinal direction for the purpose of allowing the spindle to move in the vertical direction when driven by the motor.

Re clms 10 and 25, Azuma in view of Sawada, has a drive disk (78) that engages in the groove (22a) and, by means of being driven in rotation by the drive motor (32a), permits a rotational movement of the spindle about the axis.

Re clms 11 and 26, Azuma discloses all of the claimed subject matter as described above.

Azuma does not disclose a lifting disk that is engaged with the drive motor, via a transmission element and at least one element engages with the recesses.

Sawada teaches a lifting disk (114) that is engaged with the drive motor (34) via a transmission element and at least one element engages with the recesses (C 7/L 1-3) for the purpose of transmitting the driving force from the motor to the spindle (C 7/L 39-41)

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Azuma, as taught by Sawada, and provide a lifting disk that is engaged with the driver motor, via a transmission element and at least one element engaged with the recesses for the purpose of transmitting the driving force from the motor to the spindle.

13. Regarding clms 3, 18 and 30, the examiner notes that use of the terms "releasable" and "re-detachable", in the absence of positively reciting any structure that provides for or allows for the releasing or re-detaching, only implies the mere possibility of such happening. As broadly recited most prior art anticipates the limitation.

### ***Conclusion***

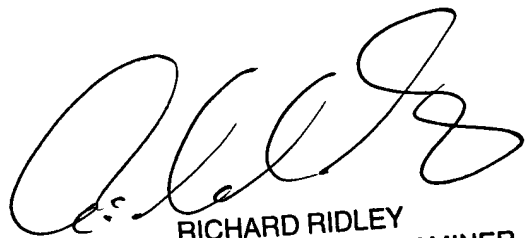
Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Pilkington whose telephone number is (571) 272-5052. The examiner can normally be reached on Monday-Friday 8:00AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James Pilkington  
03/08/2006



RICHARD RIDLEY  
SUPERVISORY PATENT EXAMINER